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(54) Title: **USE OF BISPHOSPHONIC ACID DERIVATIVES FOR THE TREATMENT OF CALCIUM PHROSPHATED DEPOSITION DISEASE AND DENTAL TREATMENT**

(57) Abstract: Use of bisphosphonic acid derivatives for the preparation of a medicament for the treatment of calcium pyrophosphate deposition disease (CPDD) primarily pseudogout and chondrocalcinosis, in a mammal. More specifically, the present invention relates to the use of bisphosphonic acid derivatives, said derivatives being especially adapted to be administered to subjects suffering from CPDD. The invention also relates to the use of bisphosphonic acid derivatives for the prevention or treatment of caries, such as secondary caries.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K31/663

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 973 576 A (SAKAMOTO SHUICHI ET AL) 27 November 1990 (1990-11-27) see especially column 8 ---	1-34
X	US 3 959 458 A (AGRICOLA FRANCIS OSWALD ET AL) 25 May 1976 (1976-05-25) the whole document ---	1-34
X	US 4 814 326 A (ROSINI SERGIO ET AL) 21 March 1989 (1989-03-21) see especially column 2, lines 36-46 ---	1-34
X	US 5 220 021 A (DUNN COLIN J ET AL) 15 June 1993 (1993-06-15) see especially column 3, lines 38-55 --- -/--	1-34

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>OFELIA MUNIZ ET AL: "NTP Pyrophosphohydrolase in human chondrocalcinotic and osteoarthritic cartilage" ARTHRITIS AND RHEUMATISM, vol. 27, no. 2, February 1984 (1984-02), pages 186-192, XP002252854 the whole document -----</p>	1-34

Information on patent family members

International Application No

PCT/DK 03/00361

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4973576	A	27-11-1990	AT 70276 T	15-12-1991
			AU 607194 B2	28-02-1991
			AU 1289788 A	08-09-1988
			CN 88102021 A ,B	05-10-1988
			DE 3866737 D1	23-01-1992
			DK 126888 A	11-09-1988
			EP 0282320 A1	14-09-1988
			ES 2037824 T3	01-07-1993
			GR 3003476 T3	17-02-1993
			HU 46700 A2	28-11-1988
			JP 2000185 A	05-01-1990

US 3959458	A	25-05-1976	NONE	

US 4814326	A	21-03-1989	IT 1187828 B	23-12-1987
			AT 125706 T	15-08-1995
			DE 3650358 D1	07-09-1995
			DE 3650358 T2	21-12-1995
			EP 0203649 A2	03-12-1986
			HK 1006154 A1	12-02-1999

US 5220021	A	15-06-1993	AT 91689 T	15-08-1993
			AU 628158 B2	10-09-1992
			AU 5330690 A	05-11-1990
			CA 2046905 A1	04-10-1990
			DE 69002328 D1	26-08-1993
			DE 69002328 T2	09-12-1993
			DK 466730 T3	18-10-1993
			EP 0466730 A1	22-01-1992
			HU 58751 A2	30-03-1992
			JP 4505011 T	03-09-1992
			WO 9012017 A1	18-10-1990
